

DIRECT TESTIMONY AND EXHIBITS OF

MICHAEL L. SEAMAN-HUYNH

ON BEHALF OF

THE SOUTH CAROLINA OFFICE OF REGULATORY STAFF

DOCKET NO. 2019-1-E

IN RE: ANNUAL REVIEW OF BASE RATES FOR FUEL COSTS OF

DUKE ENERGY PROGRESS, LLC

Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS AND OCCUPATION.

A. My name is Michael Seaman-Huynh. My business address is 1401 Main Street, Suite 900, Columbia, South Carolina 29201. I am employed by the State of South Carolina as a Senior Regulatory Manager in the Utility Rates and Services Division of the Office of Regulatory Staff (“ORS”).

Q. PLEASE STATE YOUR EDUCATIONAL BACKGROUND AND EXPERIENCE.

A. I received my Bachelor’s Degree in History from the University of South Carolina in 1997. Prior to my employment with ORS, I was employed as an energy analyst with a private consulting firm. I joined ORS in 2006 as an Electric Utilities Specialist and was promoted to Senior Electric Utilities Specialist in 2010. When the Energy Regulation Department was formed in August 2015, I assumed the position of Senior Regulatory Analyst. In May 2016, the Utility Rates and Services Division was formed, and I was promoted to the position of Senior Regulatory Manager.

Q. HAVE YOU TESTIFIED BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA (“COMMISSION”)?

1 **A.** Yes. I have testified on numerous occasions before the Commission in connection
2 with hearings concerning annual fuel clause proceedings, general rate cases, and Utility
3 Facility Siting and Environmental Protection Act proceedings.

4 **Q. WHAT IS THE MISSION OF ORS?**

5 **A.** ORS represents the public interest as defined by the South Carolina General
6 Assembly as:

7 The concerns of the using and consuming public with respect to public
8 utility services, regardless of the class of customer, and preservation of
9 continued investment in and maintenance of utility facilities so as to provide
10 reliable and high-quality utility services.

11 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

12 **A.** The purpose of my testimony is to set forth ORS's recommendations resulting from
13 our examination and review of Duke Energy Progress, LLC's ("DEP" or "Company") fuel
14 expenses and power plant operations used in the generation of electricity to meet the
15 Company's South Carolina retail customer requirements during the review period. The
16 review period includes the actual data for March 2018 through February 2019 ("Actual
17 Period"), estimated data for March 2019 through June 2019 ("Estimated Period"), and
18 forecasted data for July 2019 through June 2020 ("Forecasted Period").

19 **Q. WHAT DID YOUR REVIEW OF THE COMPANY'S FUEL EXPENSES AND**
20 **PLANT OPERATIONS INVOLVE?**

21 **A.** ORS examined various fuel and performance related documents as part of our
22 review. These documents address the Company's electric generation and power plant
23 outage and maintenance activities. In preparation for this proceeding, ORS analyzed the
24 Company's monthly fuel reports including power plant performance data, unit outages and
25 generation statistics. ORS examined the Company's contracts for nuclear fuel, coal,

1 natural gas, fuel oil, transportation, and environmental reagents. ORS also evaluated the
2 Company's policies and procedures for fuel procurement. All information was reviewed
3 with reference to the Company's existing Adjustment for Fuel, Variable Environmental,
4 Avoided Capacity, S.C. Code Ann. §58-27-865 (the "Fuel Clause Statute"), and the
5 Company's approved Distributed Energy Resource Program, S.C. Code Ann. § 58-39-140
6 ("DERP"). ORS staff also attended site visits at the Company's Asheville, H.F. Lee, Mayo,
7 Robinson, Roxboro, Sutton, and Weatherspoon locations during the Actual Period.
8 Additionally, ORS attended the Nuclear Regulatory Commission ("NRC") 2018 post-
9 annual inspection meetings for the Robinson Nuclear Plant in Hartsville, SC and
10 Brunswick Nuclear Station in Southport, NC, in April of 2019.

11 **Q. WHAT ADDITIONAL STEPS WERE TAKEN IN ORS'S REVIEW OF THE**
12 **COMPANY'S PROPOSAL?**

13 **A.** ORS met with Company personnel from various departments to discuss and review
14 fossil and nuclear fuel procurement, fuel transportation, environmental compliance costs
15 and procedures, emission allowances, generation plant performance, distributed energy
16 resources, forecasting, and general Company policies and procedures pertaining to fuel
17 procurement. In addition, ORS monitored the nuclear, coal, natural gas, transportation and
18 renewable industries through industry and governmental publications.

19 **Q. DID ORS EXAMINE THE COMPANY'S PLANT OPERATIONS FOR THE**
20 **ACTUAL PERIOD?**

21 **A.** Yes. ORS reviewed the performance of the Company's generation units to
22 determine if the Company made reasonable efforts to maximize unit availability and
23 minimize fuel costs. ORS also reviewed the operating statistics of the Company's power

plants by unit. Exhibit MSH-1 shows, in percentages, the annual availability, capacity, and forced outage factors of the Company's major generation units during the Actual Period. This Exhibit also includes the North American Electric Reliability Corporation ("NERC") national five-year (2013-2017) averages for availability, capacity, and forced outage factors for each type of generation plant.

Q. PLEASE EXPLAIN HOW THE OUTAGES ARE REPRESENTED IN EXHIBITS MSH-2 THROUGH MSH-4.

A. Exhibits MSH-2 and MSH-3 summarize outages lasting seven (7) or more days for major coal and natural gas units during the Actual Period, respectively. While not all plant outages were included in these exhibits, all outages were reviewed and found to be reasonable by ORS. Exhibit MSH-4 summarizes all outages at the Company's nuclear plants during the Actual Period. There were nine (9) separate outages involving DEP's nuclear units, including three (3) scheduled refueling outages, one (1) maintenance outage, and four (4) forced outages during the Actual Period. ORS noted one (1) refueling outage was extended beyond the scheduled restart date. This extension, as well as two (2) of the forced outages, was due primarily to Hurricane Florence. ORS reviewed each outage and extension, including associated NRC documents, and discussed these outages with Company management. The three (3) nuclear stations, which house a total of four (4) units, achieved an overall average availability factor of 88.90% and an average capacity factor of 89.45% for the Actual Period, as shown in Exhibit MSH-1.

Q. WHAT WERE THE RESULTS OF YOUR ANALYSIS OF THE COMPANY'S POWER PLANT OPERATIONS FOR THE ACTUAL PERIOD?

A. ORS's review of the Company's operation of its generation facilities during the Actual Period concluded that the Company made reasonable efforts to maximize unit availability and minimize fuel costs.

Q. DID ORS REVIEW THE COMPANY'S GENERATION MIX DURING THE ACTUAL PERIOD?

A. Yes. Exhibit MSH-5 shows the generation mix for the Actual Period by percentage and generation type. As shown in this exhibit, the nuclear, coal, and natural gas plants contributed an average of 39.24%, 10.93%, and 33.03%, respectively, of the Company's generation throughout the Actual Period. This equates to approximately 83.20% of the Company's generation for the Actual Period. The remainder of the generation was met through a mix of hydroelectric, renewables, purchased power, and Joint Dispatch Agreement ("JDA") purchases.

Q. DID ORS REVIEW THE COMPANY'S FUEL COSTS ON A PLANT-BY-PLANT BASIS FOR THE ACTUAL PERIOD?

A. Yes. Exhibit MSH-6 shows the average fuel costs for the major generation plants on the Company's system for the Actual Period and the megawatt-hours ("MWh") produced by those plants. The chart shows the lowest average fuel cost of 0.647 cents/kilowatt-hour ("kWh") at Brunswick Nuclear Station and the highest average fuel cost of 4.666 cents/kWh at the Mayo plant. The Company utilizes economic dispatch which generally requires the lower cost units be dispatched first.

Q. DID ORS REVIEW THE COMPANY'S ENVIRONMENTAL COMPLIANCE RELATED COSTS?

1 **A.** Yes. ORS reviewed the Company's environmental compliance related costs
2 including allowances for nitrogen oxide ("NO_x") and sulfur dioxide ("SO₂") emissions,
3 reagents (i.e., limestone, ammonia, urea, etc.), and chemicals used in the reduction of these
4 emissions. The use of these chemicals and reagents reduces the Company's NO_x and SO₂
5 emissions, and the costs associated with the use of these substances are included in the
6 Company's Adjustment for Fuel, Variable Environmental, Avoided Capacity, and DERP
7 costs tariff as provided by the Fuel Clause Statute.

8 **Q. DID ORS REVIEW THE ACCURACY OF THE COMPANY'S FORECAST?**

9 **A.** Yes. As shown in Exhibit MSH-7, the Company's actual MWh sales were 3.71%
10 lower than expected during the Actual Period. Exhibit MSH-8 shows, on average, the
11 actual fuel costs for the Actual Period were 4.20% higher than the projected monthly fuel
12 costs.

13 **Q. PLEASE DISCUSS ORS'S REVIEW OF THE COMPANY'S FORECASTED**
14 **SALES AND COSTS FOR THE ESTIMATED AND FORECASTED PERIODS.**

15 **A.** ORS reviewed the Company's projected sales and analyzed them with regards to
16 the projections from its last fuel proceeding in Docket No. 2018-1-E and the actual sales
17 from the Actual Period. ORS found the Company's sales projections to be reasonable and
18 in line with historical sales data.

19 ORS reviewed the Company's forecasted costs for nuclear fuel, coal, natural gas,
20 fuel oil, transportation, and environmental reagents for the Estimated and Forecasted
21 Periods. ORS compared the monthly projected costs to historical projections from Docket
22 No. 2018-1-E, actual data from the Actual Period, and commodity prices from numerous
23 industry publications. ORS found the Company's forecasted costs to be reasonable.

Q. DID ORS REVIEW THE COMPANY'S FORECASTED POWERPLANT OPERATIONS FOR THE ESTIMATED AND FORECASTED PERIODS?

A. Yes. ORS reviewed the Company's maintenance schedules and projected performance data for its power plants for the Estimated and Forecasted Periods. ORS compared these schedules to previous maintenance schedules from Docket No. 2018-1-E and found them to be reasonable.

Q. DID ORS DETERMINE THE PRIMARY DRIVERS OF THE COMPANY'S REQUEST FOR A RATE CHANGE IN THIS PROCEEDING?

A. Yes. Exhibit MSH-9 shows ending period balances of base fuel, environmental, avoided capacity, and DERP avoided costs beginning in February 2010. As of February 2019, the Company had a base fuel cumulative under-recovery balance of \$13,424,397, a variable environmental under-recovery balance of \$199,209, avoided capacity under-recovery balance of \$574,928, and DERP avoided costs under-recovery balance of \$19,286. This is reflected in ORS witness Briseno's Audit Exhibit ADB-5, page 1 of 2. As shown on ORS witness Briseno's Exhibit Audit ADB-5, page 2 of 2, ORS projects the Company to have a base fuel cumulative under-recovery balance of \$8,404,772, a variable environmental under-recovery balance of \$586,202, a capacity related under-recovery balance of \$1,230,360, and a DERP avoided costs under-recovery balance of \$19,122 by June 2019. The Company's request for a decrease is driven primarily by these balances being lower than in the previous year (Docket No. 2018-1-E) and decreased nuclear fuel, delivered coal, and natural gas prices during the Forecasted Period.

Q. WHAT CHANGES DOES THE COMPANY REQUEST TO ITS CURRENTLY APPROVED FACTORS?

1 **A.** DEP requests the Commission approve a decrease to its currently approved Base
2 Fuel Component (“Base Fuel Component”) for the Forecasted Period. Additionally, the
3 Company requests to update its Variable Environmental Component (“Environmental
4 Component”), Capacity Related Cost Component (“Capacity Related Component”), and
5 DERP Avoided Cost Component (“DERP Avoided Cost Component”) to reflect the
6 Company’s forecasted expenses and allocation of these expenses to each class of customer
7 based on its contribution to the Company’s winter 2018 peak.

8 **Q. ARE THERE ANY ADDITIONAL FACTORS IN THIS DOCKET THAT WILL**
9 **IMPACT CUSTOMERS’ BILLS?**

10 **A.** Yes. The Company included proposed rates related to its DERP incremental
11 expenses. ORS witness Hipp addresses the Company’s incremental expenses to be
12 recovered as a fixed charge (“DERP Charge”) on customer bills.

13 **Q. DOES ORS RECOMMEND ANY ADJUSTMENTS TO THE FUEL FACTOR**
14 **PROPOSED BY THE COMPANY?**

15 **A.** No. Exhibit MSH-10 is a summary of the proposed fuel factor components for each
16 customer class. If approved by the Commission, the rates proposed in this proceeding,
17 including the recommended DERP Charge addressed by ORS witness Hipp, would
18 decrease the average monthly bill for a residential customer on Rate RES using 1,000 kWh
19 from \$122.49 to approximately \$120.54, a net decrease of \$1.95 or 1.59%.

20 **Q. WILL YOU UPDATE YOUR TESTIMONY BASED ON INFORMATION THAT**
21 **BECOMES AVAILABLE?**

1 **A.** Yes. ORS fully reserves the right to revise its recommendations via supplemental
2 testimony should new information not previously provided by the Company, or other
3 sources, becomes available.

4 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

5 **A.** Yes, it does.

Office of Regulatory Staff
Power Plant Performance Data
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-1

			<i>Actual Period Data</i>		
Coal Plants	Unit	MW Rating	Average Availability Factor (%)	Average Capacity Factor (%)	Average Forced Outage Factor (%)
Asheville	1	189	73.51	36.05	5.01
Asheville	2	189	84.70	38.29	0.74
Mayo	1	727	88.21	23.87	0.39
Roxboro	1	379	86.42	30.92	1.52
Roxboro	2	671	90.45	31.68	0.62
Roxboro	3	691	88.87	38.03	0.00
Roxboro	4	698	62.51	23.59	13.37
Coal Totals		3,544	73.06	25.27	1.10
<i>NERC 5-year average (All Coal Plants)</i>			84.04	56.01	4.88

CC Plants ¹	Unit	MW Rating	Average Availability Factor (%)	Average Capacity Factor (%)	Average Forced Outage Factor (%)
Lee	CC1	888	93.77	76.21	2.14
Richmond	CC4	476	92.35	77.74	0.87
Richmond	CC5	597	94.25	81.95	0.07
Sutton	CC1	607	74.60	54.98	13.80
CC Totals		2,568	89.06	72.72	4.20
<i>NERC 5-year average (CC Plants)</i>			87.89	52.72	2.48

Nuclear Plants	Unit	MW Rating	Average Availability Factor (%)	Average Capacity Factor (%)	Average Forced Outage Factor (%)
Brunswick	1	938	87.95	87.76	3.12
Brunswick	2	932	96.90	92.59	3.10
Harris	1	932	90.74	94.59	0.00
Robinson	2	741	80.01	81.15	0.00
Nuclear Totals		3,543	88.90	89.45	1.56
<i>NERC 5-year average (All Nuclear Plants)</i>			91.72	90.44	2.02

¹ CC designates Combined-Cycle units

Office of Regulatory Staff
Coal Unit Outages - 7 Days or Greater Duration
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-2

Unit	Date Offline	Date Online	Hours	Outage Type	Explanation of Outage
Asheville 1	5/5/18	5/16/18	274.6	Planned	Unit taken offline for a planned Spring outage.
Asheville 1	10/31/18	11/9/18	208.2	Forced	Unit forced offline due to a tube leak.
Asheville 2	8/21/18	8/29/18	202.0	Planned	Unit taken offline for a planned Fall outage.
Mayo 1	5/19/18	5/30/18	281.0	Maintenance	Unit taken offline for a Spring maintenance outage.
Mayo 1	9/8/18	12/1/18	2,016.8	Planned	Unit taken offline for a planned Fall outage.
Roxboro 1	4/14/18	5/8/18	592.0	Planned	Unit taken offline for a planned Spring outage.
Roxboro 1	12/1/18	12/10/18	225.4	Planned	Unit taken offline for a planned Fall outage.
Roxboro 2	3/17/18	4/26/18	978.1	Planned	Unit taken offline for a planned Spring outage.
Roxboro 2	10/6/18	11/6/18	743.9	Planned	Unit taken offline for a planned Fall outage.
Roxboro 3	4/21/18	4/28/18	168.0	Maintenance	Unit taken offline for a startup transformer inspection.
Roxboro 3	4/28/18	5/18/18	493.0	Planned	Unit taken offline for a planned Spring outage.
Roxboro 3	9/1/18	11/27/18	2,101.8	Planned	Unit taken offline for a planned Fall outage.
Roxboro 4 ¹	2/24/18	6/2/18	2,373.3	Planned	Unit taken offline for a planned Spring outage.
Roxboro 4	10/20/18	12/9/18	1,202.1	Planned	Unit taken offline for a planned Fall outage.

¹ This outage began prior to the Actual Period.

Office of Regulatory Staff
Natural Gas Unit Outages - 7 Days or Greater Duration
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-3

Unit	Date Offline	Date Online	Hours	Outage Type	Explanation of Outage
Lee CC1	4/6/2018	4/21/2018	348.5	Planned	Unit was taken offline for Spring Outage.
Richmond CC4	3/17/2018	3/30/2018	324.5	Planned	Unit was taken offline for Spring Outage.
Richmond CC5	3/29/2018	4/19/2018	504.8	Planned	Unit was taken offline for Spring Outage.
Sutton CC1	4/14/2018	5/20/2018	872.7	Planned	Unit was taken offline for Spring Outage.
Sutton CC1	9/21/2018	12/11/2018	1,966.3	Forced	Unit forced offline due to due to Hurricane Florence.

Office of Regulatory Staff
Nuclear Unit Outages
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-4

Unit	Date Offline	Date Online	Hours	Outage Type	Explanation of Outage
Brunswick 1	3/3/18	4/4/18	779.5	Planned	Unit taken offline for scheduled refueling outage.
Brunswick 1	4/4/18	4/4/18	2.1	Planned	Unit taken offline for turbine overspeed trip test.
Brunswick 1	4/7/18	4/9/18	62.3	Forced	Unit forced offline due to due to stator cooling water low flow trip.
Brunswick 1	9/13/18	9/22/18	211.4	Forced	Unit forced offline due to due to Hurricane Florence.
Brunswick 2	6/23/18	6/28/18	119.3	Forced	Unit forced offline due to steam leak in safety relief valve.
Brunswick 2	9/14/18	9/20/18	152.1	Forced	Unit forced offline due to due to Hurricane Florence.
Harris 1	4/7/18	5/10/18	811.5	Planned	Unit taken offline for scheduled refueling outage.
Robinson 2	6/14/18	6/21/18	175.3	Maintenance	Unit taken offline for turbine blade maintenance.
Robinson 2	9/22/18	10/29/18	888.0	Planned	Unit taken offline for scheduled refueling outage.
Robinson 2	10/29/18	11/26/18	687.6	Outage Extension	Scheduled refueling outage extended due to Hurricane Florence.

Office of Regulatory Staff
Generation Mix (Percentage)
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-5

	2018												2019	
	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Average	
Nuclear	37.79	40.38	43.17	34.89	36.81	37.37	32.04	38.92	38.04	42.97	42.39	46.07	39.24	
Coal	8.65	10.06	9.42	16.46	11.93	13.15	10.82	7.12	10.30	14.44	14.43	4.34	10.93	
Natural Gas	37.98	29.49	29.33	31.35	34.85	33.80	33.78	37.27	34.34	30.42	28.38	35.37	33.03	
Hydroelectric	1.37	1.71	1.63	1.02	0.48	0.86	0.81	1.04	1.26	1.45	1.42	1.49	1.21	
Solar	0.40	0.55	0.43	0.39	0.32	0.33	0.27	0.33	0.25	0.20	0.22	0.28	0.33	
Wind	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Biomass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Purchased Power	10.27	13.60	13.34	11.79	14.91	13.36	18.87	13.95	13.02	7.67	7.89	10.48	12.43	
JDA Purchases	3.55	4.20	2.68	4.10	0.69	1.14	3.40	1.36	2.80	2.85	5.27	2.02	2.84	

Average total may not equal 100% due to rounding.

Office of Regulatory Staff
Generation Statistics for Plants
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-6

Plant	Fuel Type	Average Fuel Cost (Cents/kWh) ¹	Generation (MWh)
Brunswick	Nuclear	0.647	14,770,229
Harris	Nuclear	0.669	7,765,152
Robinson	Nuclear	0.682	5,269,567
Richmond CC	Natural Gas	2.733	8,662,801
Lee CC	Natural Gas	3.011	7,069,502
Sutton CC	Natural Gas	3.820	3,462,857
Roxboro	Coal	3.821	5,393,950
Asheville	Coal	4.385	1,202,929
Mayo	Coal	4.666	1,358,536

¹ *Includes Base Fuel and Environmental Costs.*

Office of Regulatory Staff
Comparison of South Carolina Estimated to Actual Energy Sales
 Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-7

		2018												2019	
		Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Period Total	
[1]	Actual Sales (MWh)	412,058	534,109	462,732	524,202	659,686	623,625	513,371	579,878	507,043	447,453	607,610	557,587	6,429,354	
[2]	Estimated Sales (MWh)	532,586	511,270	501,385	554,168	615,363	627,143	582,456	526,939	489,672	544,037	613,420	578,810	6,677,249	
[3]	Difference [1]-[2]	-120,528	22,839	-38,653	-29,966	44,323	-3,518	-69,085	52,939	17,371	-96,584	-5,810	-21,223	-247,895	
[4]	Percent Difference [3]/[2]	-22.63%	4.47%	-7.71%	-5.41%	7.20%	-0.56%	-11.86%	10.05%	3.55%	-17.75%	-0.95%	-3.67%	-3.71%	

Office of Regulatory Staff

Comparison of South Carolina Estimated to Actual Fuel Cost

Duke Energy Progress, LLC

Docket No. 2019-1-E

EXHIBIT MSH-8

		2018										2019		Period Average
		Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	
[1]	Actual Experience (¢/kWh)	2.282	2.090	2.358	2.450	2.246	2.207	2.514	1.857	2.335	2.396	2.503	0.642	2.157
[2]	Original Projection (¢/kWh)	2.087	2.137	2.113	2.154	2.243	2.148	1.910	1.894	1.828	2.050	2.161	2.109	2.070
[3]	Amount in Base (¢/kWh)	2.210	2.210	2.210	2.210	2.366	2.366	2.366	2.366	2.366	2.366	2.366	2.366	2.314
[4]	Variance from Actual [1-2]/[2]	9.34%	-2.20%	11.59%	13.74%	0.13%	2.75%	31.62%	-1.95%	27.74%	16.88%	15.83%	-69.56%	4.20%

Office of Regulatory Staff
History of Cumulative Recovery Accounts
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-9

Period Ending	Base Fuel Costs (Over)/Under	Environmental Costs (Over)/Under	Capacity Costs (Over)/Under	DERP Avoided Costs (Over)/Under
February-10	\$ 4,129,067	\$ 715,947	N/A	N/A
February-11	\$ 10,418,111	\$ 99,386	N/A	N/A
February-12	\$ (5,129,003)	\$ 367,391	N/A	N/A
February-13	\$ (695,511)	\$ 318,611	N/A	N/A
February-14	\$ 21,559,994	\$ 558,851	N/A	N/A
February-15	\$ 20,760,123	\$ 60,632	\$ 1,799,759	N/A
February-16	\$ 6,564,246	\$ 364,914	\$ 1,907,835	N/A
February-17	\$ 6,872,181	\$ 618,034	\$ 893,261	\$ -
February-18	\$ 23,394,223	\$ (616,503)	\$ 1,622,069	\$ 2,715
February-19	\$ 13,424,397	\$ 199,209	\$ 574,928	\$ 19,286

Office of Regulatory Staff
Proposed Fuel Factors
Duke Energy Progress, LLC
Docket No. 2019-1-E

EXHIBIT MSH-10

Customer Class	Proposed Fuel Factors (¢/kWh)				
	Base Fuel Component	Environmental Component	Capacity Related Component	DERP Avoided Cost Component	Total Fuel Factor
Residential ¹	2.090	0.075	0.697	0.003	2.865
General Service (non-demand)	2.075	0.057	0.522	0.003	2.657
General Service (demand)	2.075	- ²	- ³	- ⁴	2.075
Lighting	2.075	0.000	0.000	0.000	2.075

¹ The Residential Base Fuel Factor includes the Residential Energy Conservation Discount, Rider RECD-2C, adjustment factor of 0.7268%.

² The Proposed General Service (demand) Environmental Component is 10 cents per kW.

³ The Proposed General Service (demand) Capacity Related Component is 92 cents per kW.

⁴ The Proposed General Service (demand) DERP Avoided Cost Component is 0 cents per kW.